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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/747,744

12/29/2003

Ching-Hung Wu

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12/14/2005

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EXAMINER

CHEN, WEN YING PATTY

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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| | | | |
|------------------------------|--------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/747,744 | Applicant(s) WU ET AL. | |
| | Examiner Wen-Ying P. Chen | Art Unit 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed Sept. 2, 2005 has been received and entered. Claims 1-12 remain pending in the current application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Park (US 5929949).

With respect to claim 1 (Amended): Park discloses in Figures 11c and 5 a method of fabricating an LCD device, comprising the steps of:

- providing a substrate (element 100);
- forming a plurality of transversely extending gate lines (element 10) on the substrate;
- forming a first insulating layer (element 200) on the substrate and the gate lines;
- performing a photolithography procedure using a photo mask to form a plurality of longitudinally extending data lines (element 20) and a plurality of metallic light shield layers (elements 41 and 42; Column 3, lines 8-9) on part of the first insulating layer without contacting

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source/drain electrode, wherein the metallic light shield layers are located on both sides of the data line;

forming a second insulating layer (element 300) on the metallic light shield layers and the data lines; and

forming transparent conductive layers (element 50) on part of the second insulating layer.

As to claim 2: Park further discloses in Figures 11c and 5 that the method further comprising the step of:

forming conductive plugs (elements C1, C2, C3, C4) penetrating the second insulating layer (element 300) to electrically connect the metallic light shield layers (elements 41 and 42) and the transparent conductive layers (element 50).

As to claim 7: Park further discloses in Column 6 lines 28-29 that the transparent conductive layers are ITO (indium tin oxide) layers.

As to claim 8: Park further discloses in Column 8 lines 39-41 that the metallic light shield layers and the transparent conductive layers are equipotential.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-6 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 5929949) in view of Teramoto (US 5508532).

With respect to claim 3: Park discloses all of the limitations set forth in claim 1, but fails to specifically disclose that the transparent substrate is made of glass.

However, Teramoto teaches in Column 1 line 17 the use of glass substrate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate an LCD device as taught by Park wherein the substrate is made of glass as taught by Teramoto, since glass substrates have high transmissibility and good heat resistivity.

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As to claims 4 and 5: Park discloses all of the limitations set forth in claim 1, but fails to specifically disclose that the insulating layers are made of silicon oxide.

However, Teramoto teaches in Column 1 lines 20-21 the use of silicon oxide as insulating layers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate an LCD device as taught by Park wherein insulating layers are made of silicon oxide as taught by Teramoto, since Teramoto teaches that silicon oxide insulating layers prevents the occurrence of hysteresis between capacitance to voltage (Column 1, lines 58-64).

As to claim 6: Park discloses all of the limitations set forth in claim 1, but fails to specifically disclose that the metallic light shield layers and the data lines comprise Al (aluminum) and/or Mo.

However, Teramoto teaches in Column 6 lines 30-32 that the data lines/source/drain are made of aluminum. Since the light shield layer is formed the same step as the data lines, therefore are also made of aluminum.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate an LCD device as taught by Park wherein the metallic light shield layers and the data lines comprise Al as taught by Teramoto, since aluminum metal exhibits good conductivity and has high optical reflectance and it's relatively less costly to manufacture.

As to claim 9 (Amended): Park discloses in Figures 11c and 5 a method of fabricating an LCD device, comprising the steps of:

providing a substrate (element 100);

forming a plurality of transversely extending gate lines (element 10) on the substrate;

forming a first insulating layer (element 200) on the substrate and the gate lines;

performing a photolithography procedure using a photo mask to form a plurality of longitudinally extending data lines (element 20) and a plurality of metallic light shield layers (elements 41 and 42; Column 3, lines 8-9) on part of the first insulating layer without contacting source/drain electrode, wherein the metallic light shield layers are located on both sides of the data line;

forming a second insulating layer (element 300) on the metallic light shield layers and the data lines;

forming conductive plugs (elements C1, C2, C3, C4) penetrating the second insulating layer; and

forming transparent conductive layers (element 50) on part of the second insulating layer, wherein the metallic light shield layers electrically connect the transparent conductive layers by means of the conductive plugs.

Park fails to specifically disclose that the transparent substrate is made of glass and that the insulating layers are made of silicon oxide.

However, Teramoto teaches in Column 1 line 17 the use of glass substrate and in Column 1 lines 20-21 the use of silicon oxide as insulating layers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate an LCD device as taught by Park wherein the substrate is made of glass as taught by Teramoto, since glass substrates have high transmissibility and good heat

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resistivity and to use insulating layers made of silicon oxide as taught by Teramoto, since Teramoto teaches that silicon oxide insulating layers prevents the occurrence of hysteresis between capacitance to voltage (Column 1, lines 58-64).

As to claim 10: Park further discloses in Column 8 lines 39-41 that the metallic light shield layers and the transparent conductive layers are equipotential.

As to claim 11: Park and Teramoto disclose all of the limitations set forth in claim 9 and Teramoto further teaches in Column 6 lines 30-32 that the data lines/source/drain are made of aluminum. Since the light shield layer is formed the same step as the data lines, therefore are also made of aluminum.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate an LCD device as taught by Park and Teramoto wherein the metallic light shield layers and the data lines comprise Al as taught by Teramoto, since aluminum metal exhibits good conductivity and has high optical reflectance and it's relatively less costly to manufacture.

As to claim 12: Park further discloses in Column 6 lines 28-29 that the transparent conductive layers are ITO (indium tin oxide) layers.

Response to Arguments

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

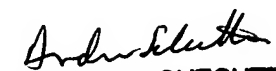
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen
Examiner
Art Unit 2871

WPC
12/11/05


ANDREW SCHECHTER
PRIMARY EXAMINER